



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
7600 Sand Point Way N.E., Bldg. 1  
Seattle, WA 98115

Refer to:  
2002/00941

October 4, 2002

Mr. Fred Patron  
U.S. Department of Transportation  
Federal Highway Administration  
The Equitable Center, Suite 100  
530 Center Street NE  
Salem, OR 97301

Re: Endangered Species Action Section 7 Formal Consultation and Magnuson-Stevens Act  
Essential Fish Habitat Consultation on the Bob Creek Bridge Replacement Project, Bob  
Creek, Lane County, Oregon.

Dear Mr. Patron:

Enclosed is a biological opinion (Opinion) prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) for the Bob Creek Bridge Replacement Project, Bob Creek, Lane County, Oregon. NOAA Fisheries concludes in this Opinion that the proposed action is not likely to jeopardize Oregon Coast (OC) coho (*Oncorhynchus kisutch*). Pursuant to section 7 of the ESA, NOAA Fisheries has included reasonable and prudent measures with non-discretionary terms and conditions that NOAA Fisheries believes are necessary and appropriate to minimize the potential for incidental take associated with this project.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and its implementing regulations (50 CFR Part 600). NOAA Fisheries concluded that the proposed action will adversely affect designated EFH for coho salmon. As required by section 305(b)(4)(A) of the MSA, included are conservation recommendations that NOAA Fisheries believes will avoid, minimize, mitigate, or otherwise offset adverse effects on EFH resulting from the proposed action. As described in the enclosed consultation, 305(b)(4)(B) of the MSA requires that a Federal action agency must provide a detailed response in writing within 30 days after receiving an EFH conservation recommendation.



Please direct any questions regarding this letter to Tom Loynes, of my staff, in the Oregon Habitat Branch at 503.231.6892.

Sincerely,

  
for

D. Robert Lohn  
Regional Administrator

cc: Molly Cary, ODOT  
Nick Testa, ODOT  
Ken Franklin, ODOT  
Brian Bauman, ODOT  
Randy Reeve, ODFW

Endangered Species Act - Section 7 Consultation  
&  
Magnuson-Stevens Act  
Essential Fish Habitat Consultation


BIOLOGICAL OPINION

Bob Creek Bridge Replacement Project,  
Bob Creek, Lane County, Oregon

Agency: Federal Highway Administration

Consultation  
Conducted By: NOAA Fisheries,  
Northwest Region

Date Issued: October 4, 2002

Issued by:   
D. Robert Lohn  
Regional Administrator

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# **1. ENDANGERED SPECIES ACT**

## **1.1 Background**

On July 31, 2002, the National Marine Fisheries Service (NOAA Fisheries) received a letter from the Federal Highway Administration (FHWA) requesting formal consultation on a bridge replacement project on Bob Creek in Lane County, Oregon. In the July letter, the FHWA determined that Oregon Coast (OC) coho (*Oncorhynchus kisutch*) may occur within the project area, and that the proposed project is “likely to adversely affect” (LAA) the subject listed species. OC coho salmon were listed as threatened on August 10, 1998 (63 FR 42587) and protective regulations went in to effect on July 10, 2000 (65 FR 42422). The objective of this Opinion is to determine whether the subject action is likely to jeopardize the continued existence of the above listed species.

## **1.2 Proposed Action**

The project area is located near the downstream end of the Bob Creek watershed. Bob Creek is a small creek that drains approximately 1,961 hectares (ha) along the steep oceanside bluffs of the central Oregon coast, primarily within the Siuslaw National Forest (USFS 1994). There are several small, unnamed tributaries along the length of the creek. Bob Creek flows due west to its confluence with the Pacific Ocean. The Bob Creek Bridge crosses the creek approximately 200 meters (m) upstream from its mouth at the Pacific Ocean.

### Bridge Construction

The proposed replacement bridge would be a single span bridge, constructed along the same alignment as the existing bridge. The replacement bridge would be approximately 35 m long by approximately 14 m wide. The bridge would be made of pre-stressed girders with a cast-in-place deck, supported by two abutments. The total deck thickness would be 2 m.

In contrast to the existing three-span bridge supported by two concrete column bents, one of which is in-stream, the proposed bridge would be single-span, with no in-channel features. No construction would occur on the west side of the bridge due to concerns about historical features. No riprap or other form of scour protection would be necessary for the replacement bridge, as the channel would not be constrained by the bridge opening (ODOT 2001).

The proposed structure would be constructed in stages. Forms would be constructed on the superstructure and the concrete-wearing surface/decking would be poured. The bridge curbs and rails would be installed on the bridge margin. The curbs would divert flow into vegetated ditches.

The proposed bridge would be stage-constructed to keep one traffic lane open at all times. The proposed staged construction would utilize a one-lane, single-span detour bridge constructed to the east of the existing bridge. Traffic would utilize this bridge while the west side of the new structure is constructed. Traffic would then be shifted to the new structure while the detour

bridge is removed and the remaining eastern portion of the new bridge is constructed. The detour bridge would be supported by a temporary wall and fully span the 2-year flood elevation.

#### Detour Bridge

As part of this project, a single-lane detour bridge would be constructed immediately upstream of the existing bridge. The detour would be used by traffic for a period of approximately one year during construction of the new bridge, after which it would be completely removed. Pre-cast beams would be used for the detour bridge and they would fully span the 2-year flood elevation. The low point of the detour bridge, with a 2-m deck thickness, is 9.6 m, which is over 1.8 m above the 500-year water surface elevation (ODOT 2001). No in-water work would be required for the placement or removal of the detour bridge. Removal of the detour bridge following completion of the new bridge would be conducted as outlined in the bridge replacement plan in the BA. Containment measures would be used to minimize sediment and debris contribution to Bob Creek during removal of the detour bridge.

#### Bridge Removal

The greatest potential impact from the project is associated with the removal of the southern (in-water) bent. This activity may affect listed coho and their habitat either through direct harm to fish, or from an increase in turbidity during removal of the bent. The contractor would prepare a bridge removal and construction plan (BRCP), describing the proposed steps for removal of the existing structure, construction of the replacement structure, and steps to minimize impacts to listed fish and critical habitat.

Sandbags, or their functional equivalent, would be used to divert stream flow from the work area and reduce turbidity during bent removal activities. The one instream bent would be totally isolated adjacent to the bank, thereby allowing passage upstream and downstream through the project area. An ODOT biologist or their designee would be present during these activities to ensure fish passage is not impeded and that any stranded fish are returned to the flowing stream. Silt fencing would be placed downstream to minimize turbidity increases, and the asphalt/concrete-wearing surface and associated fill material would be removed from the existing bridge structure using containment measures to prevent debris from entering the creek. The removed debris would not be placed in or near any wetland or waterway. All activities associated with removal of the existing structure would be confined to the in-water work period of the Oregon Department of Fish and Wildlife (ODFW), July 1 to September 15.

No channel realignment, widening, or riprap protection would be required for this project. The southern bent has altered stream hydraulics relative to natural flow patterns over the last 70 years. The permanent removal of the bents, particularly the southern, in-water bent, would gradually reduce and eliminate the scour pool associated with the original bent, and create a more open and natural channel profile.

#### Vegetation Removal

Removal of riparian vegetation on the eastern side of the existing bridge would be necessary to accommodate the new detour bridge. Vegetation would be cleared within approximately 5 m of

the existing bridge. On the north side of the creek, several large spruce trees, two in excess of 46 centimeter (cm) diameter at breast height (dbh), would be removed. On the south side, approximately 550 m<sup>2</sup> of vegetation, primarily salal, would be cleared. The south-facing spruce trees, which are frequently topped to avoid interference with overhead wires, occur on the north side of the creek, and provide minimal shading to Bob Creek. Similarly, the low-lying shrubs southeast of the bridge provide little or no shading to the creek. However, a small wetland exists at the mouth of a tributary entering Bob Creek, near the southeast corner of the existing bridge. Although current plans do not include work in this area (the retaining wall in this area would not affect the wetland), the area would be flagged and declared a no-work zone during construction.

### **1.3 Biological Information**

OC coho salmon were listed as threatened under the ESA on August 10, 1998 (63 FR 42587), and protective regulations were issued under section 4(d) of the Endangered Species Act (ESA) on July 10, 2000 (65 FR 42422).

Estimated escapement of coho salmon in coastal Oregon was about 1.4 million fish in the early 1900s, with harvest of nearly 400,000 fish (Weitkamp *et al.* 1995). Abundance of wild OC coho salmon declined during the period from about 1965 to 1975, and has fluctuated at a low level since that time (Nickelson *et al.* 1992). Lichatowich (1989) concluded that current production potential (based on stock-recruit models) for OC coho salmon in coastal Oregon rivers was only about 800,000 fish, and he associated this decline with a reduction of nearly 50% in habitat capacity. Current abundance of coho on the Oregon coast may be less than 5% of that in the early part of this century. Recent spawner abundance in this ESU has ranged from about 20,000 adults in 1990, to near 80,000 adults in 1996, and an estimated 47,400 adult coho in 1999 (Jacobs *et al.* 2001).

The OC coho salmon ESU is disproportionately distributed throughout its range. OC coho salmon escapements within the northern and mid-coast basins have averaged 39.8% over the 1990-1999 period of record. While OC coho salmon escapements within the southern basins have averaged 60.2% over the 1990-1999 period of record (Jacobs *et al.* 2001), reasons for this high productivity are probably related to additional rearing opportunities associated with the lake environments in the southern basins, and the relative size of the watersheds within these respective basins (Jacobs *et al.* 2001).

Habitat-related factors for decline of OC coho salmon include: (1) Channel morphology changes; (2) substrate changes; (3) loss of in-stream roughness; (4) loss of estuarine habitat; (5) loss of wetlands; (6) loss/degradation of riparian areas; (7) declines in water quality (*e.g.*, elevated water temperatures, reduced dissolved oxygen, altered biological communities, toxics, elevated pH, and altered stream fertility); (8) altered stream flows; (9) fish passage impediments; (10) elimination of habitat; and (11) direct take. The major activities responsible for the decline of coho salmon in Oregon are logging, road building, grazing and mining activities, urbanization, stream channelization, dams, wetland loss, beaver trapping, water

withdrawals, and unscreened diversions for irrigation. OC coho salmon are not in immediate danger of extinction, but may become endangered in the future if present trends continue.

OC coho salmon spawn and rear in the Bob Creek watershed. A 1994 stream survey of Bob Creek found no coho present, however, the results of a 1979 survey suggest a substantial population at that time (USFS 1994). Juvenile coho salmon may occur in the project area during the early part of the in-water work period, during the end of the spring out-migration period.

## **1.4 Evaluating Proposed Actions**

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402.14 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. The jeopardy analysis involves the initial steps of defining the biological requirements and current status of the listed species, and evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

For the proposed action, NOAA Fisheries' jeopardy analysis will consider direct or indirect mortality of fish attributable to the action. NOAA Fisheries also will consider the extent to which the proposed action impairs the function of essential elements necessary for migration and rearing OC coho salmon under the existing environmental baseline.

### **1.4.1 Biological Requirements**

The first step in the methods NOAA Fisheries uses for applying the ESA to listed salmon is to define the biological requirements of the species most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list salmon for ESA protection and also considers new data available that are relevant to the determination.

The relevant biological requirements are those necessary for salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment. Essential habitat features of the area for the species

are substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful spawning, rearing and migration. The current status of the listed species in this consultation, based upon their risk of extinction, has not significantly improved since the species was listed and may have worsened.

#### **1.4.2 Environmental Baseline**

The action area is defined by NOAA Fisheries regulations (50 CFR 402.02) as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action.” For the proposed project the action area is defined as the Bob Creek channel and adjacent riparian area extending upstream to the edge of disturbance, and downstream 100 m to the bottom of the project. Within the action area, Bob Creek serves as a migration corridor for OC coho salmon.

The Bob Creek watershed exhibits evidence of an extensive stand-replacing fire in 1845 (USFS 1994). Along the lower reaches of the stream there are some riparian conifers that exhibit late successional seral stage characteristics, but above river kilometer (RKm) 5.8 most vegetation consists of second growth and deciduous riparian vegetation dominated by alder (*Alnus sp.*) and salmonberry (*Sambucus sp.*) (USFS 1994).

There are no towns along Bob Creek, but the Oregon Coast Highway does cross over the creek in the project area near its mouth at the Pacific Ocean, and there is some private land and commercial development in this area. The right bank of the stream corridor from RKm 0.0 to RKm 1.0 is mixed private ownership. Private ownership in the watershed accounts for roughly 16 % of the available stream habitat (USFS 1994). However, above RKm 1.0, the watershed is entirely within the Cummins Creek Wilderness (USFS 1994).

The USFS surveyed the riparian area, aquatic habitat, and fisheries within Bob Creek from the ocean to approximately 6.4 km upstream in 1994. The Bob Creek Bridge is within Reach 1, the lower-most 2.2 km. Although access to anadromous fish was deemed excellent due to the complete inundation of the creek mouth at high tide, the survey found no coho present in any of the reaches. However, a 1979 survey suggests a substantial coho population (USFS 1994). In addition, the USFS survey report cites a 1967 Oregon Game Commission survey in which 750 coho were observed below RKm 6.4.

Upper reaches of this stream are steep, and an upstream dam for residential water supply creates a barrier for anadromous fish. Older age class steelhead occur up to approximately RKm 4.60, with low densities within the range of distribution (USFS 1994).

Habitat elements of concern for migrating adult and juvenile OC coho salmon include water quality (temperature, turbidity, contamination), habitat access (physical barriers such as culverts

and dams), hydrology (peak/base flows, timing/quantity of flows), and habitat complexity (pool habitat, channel condition, and refugia). There are no barriers to fish migration within the lower segment of Bob Creek.

Bob Creek is not currently listed on the Oregon Department of Environmental Quality 303(d) List of Water Quality Limited Water Bodies (ODEQ 1999). The Oregon Division of State Lands includes Bob Creek in "essential salmonid habitat". This designation affects DSL Removal-Fill laws (DSL 2001).

Riparian forests along lower Bob Creek are in early seral stage with Sitka spruce and red alder (*Alnus rubra*) as the dominant and sub-dominant vegetative component. The lower reach of the creek showed a high potential for recruitment of large woody debris (LWD), although instream LWD is not abundant.

The ODFW in-water work period for coastal tributaries, including Bob Creek, is July 1 to September 15. These in-water work periods are designed to limit the potential direct impacts to fish species by timing work activities during periods of low fish abundance levels and minimal spawning and migration activities.

## **1.5 Analysis of Effects**

### **1.5.1 Effects of Proposed Action**

This effects analysis addresses effects to listed OC coho salmon that may result from this project given the conservation measures to be employed. These potential effects include reductions in water quality, changes in channel conditions and dynamics, alteration of stream flows, shifts in watershed condition, and direct harm to fish.

#### Water Quality

The quality of the water that fish encounter on their migration is extremely important, and can determine such things as feeding and breeding success rates, disease levels, growth rates, and predation rates. Major elements of water quality critical to salmon are turbidity, suspended sediment, chemical contamination, and temperature. Turbidity and fine sediments can reduce prey detection, alter trophic levels, reduce substrate oxygen, smother redds, and damage gills, as well as cause other deleterious effects. Chemical contamination can reduce fecundity and fertility, increase disease, shift biotic communities, and reduce the overall health of migrating salmon. Temperature affects metabolic rates, resistance to disease, oxygen concentrations in the water, and other vital factors.

The effects of suspended sediment and turbidity on fish, as reported in the literature, range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth,

and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). Turbidity resulting from the proposed project will be confined to the construction and removal of the temporary structures, the removal of bents from the existing bridges, and the placement of a single bent for the new bridges. The turbidity resulting from this in-water work will be limited in space and time.

Increases in suspended sediment and turbidity would be short-term and limited to activities associated with removal of the bents. Vegetation removal may reduce shade minimally, but NOAA Fisheries feels this will have minor temperature increases given the small area, the east-west orientation of Bob Creek, and its proximity to the ocean. An erosion and sediment control plan and pollution control plan specifying containment measures would be developed to minimize water quality effects, including chemical contamination due to asphalt-concrete application, lane painting and striping, and vehicle refueling and maintenance.

#### Stream Channel Conditions

Channel conditions and dynamics are influenced by a number of processes. Changes in impervious surface area and riprap are two common elements of transportation projects that directly affect channel condition and dynamics. Increased roadway area provides additional opportunities to collect and deliver lubricants, coolants and other pollutants released from automobiles. The increase in erosion can lead to simplification and channelization of the stream, while the reduced groundwater storage can alter the peak and base flows of the drainage. At this low position in the watershed these effects should be minor.

The in-water work proposed will also alter the substrate in the river where existing bents are placed. The substrate will be disturbed when the bents are removed. In the long term, the substrate will become more stable and even, due to the elimination of the bents in the river supporting the bridges.

#### Stream Basin Hydrology

The proposed bridge would have a hydraulic opening greater than the existing bridge, and the creek would not be constrained due to the single-span design. There would therefore be no scour or backwater effects (ODOT Hydraulics Report, 2001). The slight increase in width (0.6 m) results in a minor increase in impervious surface (20 m<sup>2</sup> at a length of 33.5 m.). Removal of several trees to the northeast of the new bridge to accommodate the detour bridge is also not expected to alter stream hydrology. Additional impervious surfaces can alter the water quality, hydrology, and habitat complexity of a system. The reduction in infiltration capacity can result

in an increase in peak and duration of flows during storm events, increased erosion, and reduced groundwater storage. There would be a minor increase in impervious surface as a result of the slightly increased width of the bridge.

#### Harm and Harassment

Direct harm to fish species may occur as a result of fish removal from the work area and removal of the existing bridge deck and bent. The probability of harm is low because these activities would be conducted using containment measures, the work area would be isolated using a sandbag diversion, and silt fencing (a secondary measure) would be employed to minimize turbidity effects. In addition, all work requiring disturbance of the Bob Creek channel would be conducted during the ODFW defined in-water work period, when NOAA Fisheries feels fish presence is low. Within the isolated work area fish removal would occur. Isolation of the work area would have direct effects to ESA-listed OC coho salmon during the fish removal and relocation process. Direct harm to fish species may occur during handling. Potentially delayed mortality could occur due to stress related to handling.

The proposed action, as described above in section 1.2, is to remove and replace an existing bridge on Bob Creek. The demolition and construction of a new bridge is expected to result in minimal disturbance of stream substrate, and therefore minimal displacement of any sediment which may be present in the stream substrate. Even though this substrate disturbance is expected to be minimal, some short-term turbidity may occur in Bob Creek. The short-term increase in turbidity could result in temporarily-reduced feeding efficiency for juvenile salmonids in the project area, and a short distance downstream.

The proposed project also includes construction of a detour bridge that will carry traffic for approximately one year during construction of the new bridge. This detour bridge will fully span the 2-year flood elevation and will involve no in-water work. It will be left in place for one year, and be removed during the following in-water work window. This may cause short-term effects, such as turbidity discussed above. Construction and removal will occur only once, therefore, disturbance to the substrate, water column and surrounding riparian areas will be minimized.

The preferred in-water work period for Bob Creek is between July 1 and September 15. Juvenile OC coho occur in Bob Creek, however, NOAA Fisheries feels it is unlikely that ESA listed fish will be in the project area in high numbers during the in-water work period. NOAA Fisheries expects harm and harassment of juvenile OC coho to be minimal, because the in-water work will be isolated from the stream.

### **1.6 Conclusion**

NOAA Fisheries has determined, based on the status of the ESA listed species, environmental baseline, effects of the subject action and cumulative effects, that replacement of a bridge on Bob Creek is not likely to jeopardize the continued existence of OC coho salmon. In arriving at this conclusion, NOAA Fisheries considered the status of the listed species, the environmental

baseline conditions, the direct and indirect effects of approving the action, and the cumulative effects of actions anticipated in the action area.

The proposed action would cause short-term increases in suspended sediment and turbidity, a minor increase in delivery of roadway pollutants, a minor alteration of hydrologic function, and minimal harassment of OC coho salmon. Timing and construction restrictions would minimize these effects. Pile bents in the river will be reduced from one, currently supporting the bridge, to none within the river channel.

The anticipated effects on water quality, substrate quality and hydrologic functions would not be great enough in extent or duration to prevent or delay achievement of properly functioning habitat conditions in the action area.

### **1.7 Reinitiation of Consultation**

This concludes formal consultation on these actions in accordance with 50 CFR 402.14(b)(1). Reinitiation of consultation is required: (1) If the amount or extent of incidental take is exceeded, (2) if the action is modified in a way that causes an effect on the listed species that was not previously considered in the information provided by the FHWA and this Opinion, (3) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered, or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

## **2. INCIDENTAL TAKE STATEMENT**

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. “Harm” is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. “Harass” is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. “Incidental take” is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

## **2.1 Amount or Extent of the Take**

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of listed species. Effects of actions such as these are largely unquantifiable and are not expected to be measurable as long-term effects on population levels. Therefore, even though NOAA Fisheries expects some low-level of incidental take to occur due to the actions covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected level of take as "unquantifiable." NOAA Fisheries expects the possibility exists for handling OC coho salmon during the work isolation process resulting in incidental take to individuals during the construction period. NOAA Fisheries anticipates that direct incidental take of up to 25 juvenile OC coho salmon could occur as a result of the work isolation process. The extent of the take is limited to OC coho salmon within the action area. The extent of authorized take is limited to take occurring from the project as proposed that occurs within the action area as defined in this Opinion. Based on the information provided by the FHWA, NOAA Fisheries anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Opinion.

## **2.2 Reasonable and Prudent Measures**

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to require the applicants to adhere to the terms and conditions of this incidental take statement through enforceable terms that are added to the permit or grant document, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

NOAA Fisheries believes that, in addition to the conditions proposed by the FHWA, the following reasonable and prudent measures are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of the project.

1. Minimize the likelihood of incidental take from in-water work by timing the completion of all in-water work as necessary to avoid harming vulnerable salmon life history functions, including migration and rearing.
2. Minimize the likelihood of incidental take from in-water work by ensuring that the in-water work area is isolated from flowing water.
3. Ensure effectiveness by requiring all erosion control measures and plantings for site restoration to be monitored and evaluated both during and following construction.

## 2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (in-water timing), the FHWA shall ensure that:
  - a. All work within the active channel that could potentially contribute sediment or toxicants to downstream fish-bearing systems will be completed within the ODFW approved in-water work period.<sup>1</sup>
  - b. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the ordinary high water mark must be approved by biologists from NOAA Fisheries.
2. To implement Reasonable and Prudent Measure #2 (isolation of in-water work area), the FHWA shall ensure that during pier removal, the work area is well isolated from the active flowing stream within a coffer dam, or similar structure, to minimize the potential for sediment movement.
  - a. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:
    - i. Before and intermittently during pumping, attempts will be made to seine and release fish from the work isolation area as is prudent to minimize risk of injury.
    - ii. Seining will be conducted by, or under the supervision of a fishery biologist experienced in such efforts. Staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
    - iii. ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
    - iv. Seined fish must be released as near as possible to capture sites.
    - v. If a dead, injured, or sick listed species specimen is found, initial notification must be made to the NOAA Fisheries Law Enforcement Office, in the Vancouver Field Office, 600 Maritime, Suite 130, Vancouver, Washington 98661; or call: 360.418.4246. Care should be taken in handling sick or injured specimens to ensure effective treatment and care. Dead specimens should be handled to preserve biological

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<sup>1</sup> Oregon Department of Fish and Wildlife, *Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, 12 pp (June 2000) (identifying work periods with the least impact on fish)([http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600\\_inwtrguide.pdf](http://www.dfw.state.or.us/ODFWhtml/InfoCntrHbt/0600_inwtrguide.pdf)).

material in the best possible state for later analysis of cause of death. With the care of sick or injured listed species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed.

- vi. The FHWA shall ensure that no ESA-listed fish to are transferred to third parties other than NOAA Fisheries personnel without prior written approval from the NOAA Fisheries.
  - vii. The FHWA shall ensure that any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities will be obtained prior to project seining activity.
  - viii. The FHWA must allow the NOAA Fisheries or its designated representative to accompany field personnel during the seining activity and allow such representative to inspect the seining records and facilities.
  - ix. A description of any seine and release effort will be included in a post project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions before and following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality.
- b. If the fish salvaging aspect of this project requires the use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 2000):
- i. Electrofishing may not occur near listed adults in spawning condition or near redds containing eggs.
  - ii. Equipment must be in good working condition. Operators must go through the manufacturer's preseason checks, follow all provisions, and record major maintenance work in a log.
  - iii. A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be a logbook. The training must occur before an inexperienced crew begins any electrofishing; it must also be conducted in waters that do not contain listed fish.
  - iv. Measure conductivity and set voltage as follows:
 

(1) Conductivity (umhos/cm)	Voltage
(2) Less than 100	900 to 1100
(3) 100 to 300	500 to 800
(4) Greater than 300	150 to 400
  - v. Direct current (DC) must be used at all times.
  - vi. Each session must begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse

- width of 500 us and do not exceed 5 milliseconds. Pulse rate should start at 30Hz and work carefully upwards. In general, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.
- vii. The zone of potential fish injury is 0.5 m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.
  - viii. The monitoring area must be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.
  - ix. Crew members must carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Sampling must be terminated if injuries occur or abnormally long recovery times persist.
  - x. Whenever possible, a block net must be placed below the area being sampled to capture stunned fish that may drift downstream.
  - xi. The electro-fishing settings must be recorded in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, with observations on fish condition, will improve technique and form the basis for training new operators.
- c. Containment measures should be in place to capture falling debris during removal of the existing structure.
3. To implement Reasonable and Prudent Measure #3 (monitoring and reporting), the FHWA shall ensure that:
- a. Within 120 days of completing the project, the FHWA shall ensure submittal of a monitoring report to NOAA Fisheries describing the FHWA's success meeting their permit conditions. This report will consist of the following information.
    - i. Project identification.
      - (1) Project name.
      - (2) Starting and ending dates of work completed for this project.
      - (3) The FHWA contact person.
      - (4) Monitoring reports shall be submitted to:
    - ii. Isolation of in-water work area. A report of any seine or electrofishing and release activity including:
      - (1) The name and address of the supervisory fish biologist.
      - (2) Methods used to isolate the work area and minimize disturbances to ESA-listed species.
      - (3) Stream conditions before and following placement and removal of barriers.
      - (4) The means of fish removal.
      - (5) The number of fish removed by species.

- (6) The location and condition of all fish released. Any incidence of observed injury or mortality.
- iii. Pollution and erosion control. A summary of pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.
- iv. Site restoration. Documentation of the following conditions:
  - (1) Finished grade slopes and elevations.
  - (2) Log and rock structure elevations, orientation, and anchoring, if any.
  - (3) Planting composition and density.
  - (4) A plan to inspect and, if necessary, replace failed plantings and structures for three years.
- v. A narrative assessment of the project's effects on natural stream function.
- vi. Photographic documentation of environmental conditions at the project site and compensatory mitigation site(s) (if any) before, during and after project completion.
  - (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.
  - (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
  - (3) Relevant habitat conditions include characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

The annual report will be submitted to:  
 NOAA Fisheries  
 Oregon State Branch, Habitat Conservation Division  
 Attn: 2002/00941  
 Portland, Oregon 97232-2778

### **3. MAGNUSON-STEVENSON ACT**

#### **3.1 Magnuson-Stevens Fishery Conservation and Management Act**

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).
- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (§305(b)(4)(A)).
- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: “Waters” include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; “substrate” includes sediment, hard bottom, structures underlying the waters, and associated biological communities; “necessary” means the habitat required to support a sustainable fishery and the managed species’ contribution to a healthy ecosystem; and “spawning, breeding, feeding, or growth to maturity” covers a species’ full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and up slope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

### **3.2 Identification of EFH**

Pursuant to the MSA the Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Federally-managed Pacific salmon: Chinook (*Oncorhynchus tshawytscha*), coho (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the Pacific Coast Salmon Plan (PFMC 1999). Assessment of

potential adverse effects to these species' EFH from the proposed action is based, in part, on this information.

### **3.3 Proposed Action**

The proposed action is detailed above in section 1.2 of this document. The action area includes Bob Creek near the Pacific Ocean. This area has been designated as EFH for various life stages of chinook and coho salmon.

### **3.4 Effects of Proposed Action**

As described in detail in section 1.5 of this document, the proposed activity will result in short-term adverse effects to a variety of habitat parameters. These adverse effects are:

- Turbidity from bridge construction,
- increased suspended sediment and,
- increased pollutant runoff and,
- disturbance to stream substrate and,
- minor hydrologic alteration.

### **3.5 Conclusion**

NOAA Fisheries believes that the proposed action may adversely affect the EFH for chinook and coho salmon.

### **3.6 EFH Conservation Recommendations**

Pursuant to Section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the BA will be implemented by the FHWA, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the Terms and Conditions outlined in section 2.3 are generally applicable to designated EFH for chinook salmon and coho salmon, and address these adverse effects. Consequently, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

### **3.7 Statutory Response Requirement**

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the

scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

### **3.8 Supplemental Consultation**

The FHWA must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

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